

Amendments to the Claims

The listing of claims below is intended to replace all prior listings of claims presented in the above-identified application.

1. (Currently Amended) A DNA construct comprising:

a fragment of a ~~trait~~ first DNA molecule which has a length that is insufficient to independently impart a desired trait to plants transformed with said fragment of a ~~trait~~ the first DNA molecule, wherein the fragment of a ~~trait~~ first DNA molecule is from a viral source and is at least 110 nucleotides in length but is less than a full-length cDNA encoding said trait;

a ~~silencer~~ second DNA molecule effective to achieve post-transcriptional gene silencing of said fragment of a ~~trait~~ the first DNA molecule and coupled to said fragment of a ~~trait~~ the first DNA molecule, wherein said second DNA molecule is at least 400 nucleotides in length and said fragment of a ~~trait~~ the first DNA molecule and said ~~silencer~~ the second DNA molecule are heterologous to each other and collectively impart the trait to plants transformed with said DNA construct and wherein said fragment of a ~~trait~~ the first DNA molecule and said ~~silencer~~ the second DNA molecule are heterologous to plants;

a single promoter sequence which effects transcription of both the fragment of a ~~trait~~ the first DNA molecule and the ~~silencer~~ second DNA molecule; and

a single termination sequence which ends transcription of both the fragment of a ~~trait~~ the first DNA molecule and the ~~silencer~~ second DNA molecule.

2. (Currently Amended) The DNA construct according to claim 1,

wherein said DNA construct comprises:

a plurality of different ~~trait~~ first DNA molecules operatively positioned within said DNA construct so that said single promoter sequence and said single termination sequence, respectively, effect transcription and end transcription of said plurality of different ~~trait~~ first DNA molecules.

3. (Currently Amended) The DNA construct according to claim 2,

wherein at least one of the different ~~trait~~ first DNA molecules is a viral cDNA molecule and the trait is viral disease resistance.

4. (Previously Presented) The DNA construct according to claim 3, wherein said viral cDNA molecule is selected from the group consisting of a DNA molecule encoding a coat protein, a DNA molecule encoding a replicase, a DNA molecule not encoding a protein, a DNA molecule encoding a viral gene product, and combinations thereof.

5. (Previously Presented) The DNA construct according to claim 3, wherein said viral cDNA molecule is from a plant virus selected from the group consisting of tomato spotted wilt virus, impatiens necrotic spot virus, groundnut ringspot virus, potato virus Y, potato virus X, tobacco mosaic virus, turnip mosaic virus, tobacco etch virus, papaya ringspot virus, a DNA molecule not encoding a protein, tomato mottle virus, and tomato yellow leaf curl virus.

6. to 8. (Canceled)

9. (Currently Amended) The DNA construct according to claim 2, wherein the ~~silencer~~ second DNA molecule is selected from the group consisting of a viral cDNA molecule, a jellyfish green fluorescence protein encoding DNA molecule, a ~~viral gene silencer~~, and combinations thereof.

10. (Currently Amended) The DNA construct according to claim 1, wherein the ~~trait~~ first DNA molecule is a viral cDNA molecule and the trait is viral disease resistance.

11. (Previously Presented) The DNA construct according to claim 10, wherein said viral cDNA molecule is selected from the group consisting of a DNA molecule encoding a coat protein, a DNA molecule encoding a replicase, a DNA molecule not encoding a protein, a DNA molecule encoding a viral gene product, and combinations thereof.

12. (Previously Presented) The DNA construct according to claim 10, wherein said viral cDNA molecule is from a plant virus selected from the group consisting of tomato spotted wilt virus, impatiens necrotic spot virus, groundnut ringspot virus, potato

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virus Y, potato virus X, tobacco mosaic virus, turnip mosaic virus, tobacco etch virus, papaya ringspot virus, tomato mottle virus, and tomato yellow leaf curl virus.

13. to 15 (Canceled)

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16. (Currently Amended) The DNA construct according to claim 1, wherein the ~~silencer~~ second DNA molecule is selected from the group consisting of a viral cDNA molecule, a jellyfish green fluorescence protein encoding DNA molecule, a ~~viral gene~~ ~~silencer~~, and combinations thereof.

17. (Currently Amended) The DNA construct according to claim 1, wherein ~~said trait~~ the first DNA molecule and ~~said silencer~~ the second DNA molecule encode RNA molecules which are translatable.

18. (Currently Amended) The DNA construct according to claim 1, wherein ~~said trait~~ the first DNA molecule and ~~said silencer~~ the second DNA molecule encode RNA molecules which are non-translatable.

19. (Currently Amended) The DNA construct according to claim 2, wherein, of the plurality of different ~~trait~~ first DNA molecules, at least one of the different ~~trait~~ first DNA molecules is long enough to impart a trait.

20. (Currently Amended) The DNA construct according to claim 1, wherein said construct effects post-transcriptional gene silencing of the fragment of ~~trait~~ the first DNA molecule within plants.

21. to 22. (Canceled)

23. (Original) A DNA expression vector comprising the DNA construct of claim 1.

24. (Currently Amended) The DNA expression vector according to claim 23, wherein said DNA construct comprises a plurality of different ~~trait~~ first DNA molecules operatively positioned within said DNA construct so that said single promoter sequence and

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said single termination sequence, respectively, effect transcription and end transcription of said plurality of different ~~trait~~ first DNA molecules.

25. (Currently Amended) The DNA expression vector according to claim 24, wherein at least one of the different ~~trait~~ first DNA molecules is a viral cDNA molecule and the trait is viral disease resistance.

26. (Canceled)

27. (Original) A host cell transformed with the DNA construct of claim 1.

28. (Currently Amended) The host cell according to claim 27, wherein said DNA construct comprises a plurality of different ~~trait~~ first DNA molecules operatively positioned within said DNA construct so that said single promoter sequence and said single termination sequence, respectively, effect transcription and end transcription of said plurality of different ~~trait~~ first DNA molecules.

29. (Previously Presented) The host cell according to claim 28, wherein said DNA construct is within an expression vector.

30. (Canceled)

31. (Previously Presented) The host cell according to claim 28, wherein said host cell is a plant cell.

32. (Original) A transgenic plant transformed with the DNA construct according to claim 1.

33. (Currently Amended) The transgenic plant according to claim 32, wherein said DNA construct comprises a plurality of different ~~trait~~ first DNA molecules operatively positioned within said DNA construct so that said single promoter sequence and said single termination sequence, respectively, effect transcription and end transcription of said plurality of different ~~trait~~ first DNA molecules.

34. (Currently Amended) The transgenic plant according to claim 33, wherein at least one of the different ~~trait~~ first DNA molecules is a viral cDNA molecule and the trait is viral disease resistance.

35. (Previously Presented) The transgenic plant according to claim 34, wherein said viral cDNA molecule is selected from the group consisting of a DNA molecule encoding a coat protein, a DNA molecule encoding a replicase, a DNA molecule not encoding a protein, a DNA molecule encoding a viral gene product, and combinations thereof.

36. (Previously Presented) The transgenic plant according to claim 34, wherein said plant viral cDNA molecule is from a virus selected from the group consisting of tomato spotted wilt virus, impatiens necrotic spot virus, groundnut ringspot virus, potato virus Y, potato virus X, tobacco mosaic virus, turnip mosaic virus, tobacco etch virus, papaya ringspot virus, tomato mottle virus, and tomato yellow leaf curl virus.

37. to 39. (Canceled)

40. (Currently Amended) The transgenic plant according to claim 33, wherein the ~~silencer~~ second DNA molecule is selected from the group consisting of a viral cDNA molecule, a jellyfish green fluorescence protein encoding DNA molecule, a viral gene silencer, and combinations thereof.

41. (Currently Amended) The transgenic plant according to claim 33, wherein ~~said trait~~ the first DNA molecule and ~~said silencer~~ the second DNA molecule encode RNA molecules which are translatable.

42. (Currently Amended) The transgenic plant according to claim 33, wherein ~~said trait~~ the first DNA molecule and ~~said silencer~~ the second DNA molecule encode RNA molecules which are non-translatable.

43. (Previously Presented) The transgenic plant according to claim 33, wherein the plant is selected from the group consisting of alfalfa, rice, wheat, barley, rye, cotton, sunflower, peanut, corn, potato, sweet potato, bean, pea, chicory, lettuce, endive,

cabbage, brussel sprout, beet, parsnip, turnip, cauliflower, broccoli, radish, spinach, onion, garlic, eggplant, pepper, celery, carrot, squash, pumpkin, zucchini, cucumber, apple, pear, melon, citrus, strawberry, grape, raspberry, pineapple, soybean, tobacco, tomato, sorghum, papaya, sugarcane, *Arabidopsis thaliana*, *Saintpaulia*, petunia, pelargonium, poinsettia, chrysanthemum, carnation, and zinnia.

44. to 45. (Canceled)

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46. (Previously Presented) A method of imparting a trait to a plant comprising:

transforming a plant with a DNA construct according to claim 1 under conditions effective to impart a trait to the plant.

47. (Currently Amended) The method according to claim 46, wherein said DNA construct comprises a plurality of different ~~trait~~ first DNA molecules operatively positioned within said DNA construct so that said single promoter sequence and said single termination sequence, respectively, effect transcription and end transcription of said plurality of different ~~trait~~ first DNA molecules.

48. (Currently Amended) The method according to claim 47, wherein at least one of the different ~~trait~~ first DNA molecules is a plant viral cDNA molecule and the trait is viral disease resistance.

49. (Previously Presented) The method according to claim 48, wherein said viral cDNA molecule is selected from the group consisting of a DNA molecule encoding a coat protein, a DNA molecule encoding a replicase, a DNA molecule not encoding a protein, a DNA molecule encoding a viral gene product, and combinations thereof.

50. (Previously Presented) The method according to claim 48, wherein said plant viral DNA molecule is from a virus selected from the group consisting of tomato spotted wilt virus, impatiens necrotic spot virus, groundnut ringspot virus, potato virus Y, potato virus X, tobacco mosaic virus, turnip mosaic virus, tobacco etch virus, tomato mottle virus, and tomato yellow leaf curl virus.

51. to 52. (Canceled)

53. (Currently Amended) The method according to claim 47, wherein the ~~silencer~~ second DNA molecule is selected from the group consisting of a viral cDNA molecule, a jellyfish green fluorescence protein encoding DNA molecule, and combinations thereof.

54. (Currently Amended) The method according to claim 47, wherein ~~said~~ ~~trait the first~~ DNA molecule and ~~said-silencer~~ the second DNA molecule encode RNA molecules which are translatable.

55. (Currently Amended) The method according to claim 47, wherein ~~said~~ ~~trait the first~~ DNA molecule and ~~said-silencer~~ the second DNA molecule encode RNA molecules which are non-translatable.

56. (Previously Presented) The method according to claim 47, wherein the plant is selected from the group consisting of alfalfa, rice, wheat, barley, rye, cotton, sunflower, peanut, corn, potato, sweet potato, bean, pea, chicory, lettuce, endive, cabbage, brussel sprout, beet, parsnip, turnip, cauliflower, broccoli, radish, spinach, onion, garlic, eggplant, pepper, celery, carrot, squash, pumpkin, zucchini, cucumber, apple, pear, melon, citrus, strawberry, grape, raspberry, pineapple, soybean, tobacco, tomato, sorghum, papaya, sugarcane, *Arabidopsis thaliana*, *Saintpaulia*, petunia, pelargonium, poinsettia, chrysanthemum, carnation, and zinnia.

57. (Previously Presented) The method according to claim 47 further comprising:

propagating progeny of the plants transformed with said DNA construct.

58. (Original) A transgenic plant seed transformed with the DNA construct according to claim 1.

59. (Currently Amended) The transgenic plant seed according to claim 58, wherein said DNA construct comprises a plurality of different ~~trait~~ first DNA molecules operatively positioned within said DNA construct so that said single promoter sequence and

said single termination sequence, respectively, effect transcription and end transcription of said plurality of different ~~trait~~ first DNA molecules.

60. (Currently Amended) The transgenic plant seed according to claim 59, wherein at least one of the different ~~trait~~ first DNA molecules is a viral cDNA molecule and the trait is viral disease resistance.

61. (Previously Presented) The transgenic plant seed according to claim 60, wherein said viral cDNA molecule is selected from the group consisting of a DNA molecule encoding a coat protein, a DNA molecule encoding a replicase, a DNA molecule that does not encode a protein, a DNA molecule encoding a viral gene product, and combinations thereof.

62. (Previously Presented) The transgenic plant seed according to claim 60, wherein said viral cDNA molecule is from a virus selected from the group consisting of tomato spotted wilt virus, impatiens necrotic spot virus, groundnut ringspot virus, potato virus Y, potato virus X, tobacco mosaic virus, turnip mosaic virus, tobacco etch virus, tomato mottle virus, and tomato yellow leaf curl virus.

63. to 65. (Canceled)

66. (Currently Amended) The transgenic plant seed according to claim 59, wherein ~~said silencer~~ the second DNA molecule is selected from the group consisting of a viral cDNA molecule, a jellyfish green fluorescence protein encoding DNA molecule, and combinations thereof.

67. (Currently Amended) The transgenic plant seed according to claim 60, wherein ~~said~~ the viral cDNA molecule and ~~said silencer~~ the second DNA molecule encode RNA molecules which are translatable.

68. (Currently Amended) The transgenic plant seed according to claim 60, wherein ~~said~~ the viral cDNA molecule and ~~said silencer~~ the second DNA molecule encode RNA molecules which are non-translatable.

69. (Previously Presented) The transgenic plant seed according to claim 59, wherein the plant seed is from a plant selected from the group consisting of alfalfa, rice, wheat, barley, rye, cotton, sunflower, peanut, corn, potato, sweet potato, bean, pea, chicory, lettuce, endive, cabbage, brussel sprout, beet, parsnip, turnip, cauliflower, broccoli, radish, spinach, onion, garlic, eggplant, pepper, celery, carrot, squash, pumpkin, zucchini, cucumber, apple, pear, melon, citrus, strawberry, grape, raspberry, pineapple, soybean, tobacco, tomato, sorghum, papaya, sugarcane, *Arabidopsis thaliana*, *Saintpaulia*, petunia, pelargonium, poinsettia, chrysanthemum, carnation, and zinnia.

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70. (Previously Presented) A method of imparting a trait to a plants comprising:
planting a transgenic plant seed according to claim 58 and
propagating a plant from the planted transgenic plant seed under conditions effective to impart a trait to the plant.

71. (Currently Amended) The method according to claim 70, wherein said DNA construct comprises a plurality of different ~~trait~~ first DNA molecules operatively positioned within said DNA construct so that said single promoter sequence and said single termination sequence, respectively, effect transcription and end transcription of said plurality of different ~~trait~~ first DNA molecules.

72. (Currently Amended) The method according to claim 71, wherein at least one of the different ~~trait~~ first DNA molecules is a viral cDNA molecule and the trait is viral disease resistance.

73. (Previously Presented) The method according to claim 72, wherein said viral cDNA molecule is selected from the group consisting of a DNA molecule encoding a coat protein, a DNA molecule encoding a replicase, a DNA molecule which does not encode a protein, a DNA molecule encoding a viral gene product, and combinations thereof.

74. (Previously Presented) The method according to claim 72, wherein said viral cDNA molecule is from a virus selected from the group consisting of tomato spotted wilt virus, impatiens necrotic spot virus, groundnut ringspot virus, potato virus Y,

potato virus X, tobacco mosaic virus, turnip mosaic virus, tobacco etch virus, tomato mottle virus, and tomato yellow leaf curl virus.

75. to 76. (Canceled)

77. (Currently Amended) The method according to claim 71, wherein the ~~silencer~~ second DNA molecule is selected from the group consisting of a viral cDNA molecule, a jellyfish green fluorescence protein encoding DNA molecule, and combinations thereof.

78. (Currently Amended) The method according to claim 71, wherein ~~said trait~~ the first DNA molecule and ~~said silencer~~ the second DNA molecule encode RNA molecules which are translatable.

79. (Currently Amended) The method according to claim 71, wherein ~~said trait~~ the first DNA molecule and ~~said silencer~~ the second DNA molecule encode RNA molecules which are non-translatable.

80. (Previously Presented) The method according to claim 71, wherein the plant seed is from a plant selected from the group consisting of alfalfa, rice, wheat, barley, rye, cotton, sunflower, peanut, corn, potato, sweet potato, bean, pea, chicory, lettuce, endive, cabbage, brussel sprout, beet, parsnip, turnip, cauliflower, broccoli, radish, spinach, onion, garlic, eggplant, pepper, celery, carrot, squash, pumpkin, zucchini, cucumber, apple, pear, melon, citrus, strawberry, grape, raspberry, pineapple, soybean, tobacco, tomato, sorghum, papaya, sugarcane, *Arabidopsis thaliana*, *Saintpaulia*, petunia, pelargonium, poinsettia, chrysanthemum, carnation, and zinnia.

81. (Previously Presented) The method according to claim 71 further comprising:
propagating progeny of the plants transformed with said DNA construct.

82. to 94. (Canceled)

95. (New) A DNA construct comprising:

a fusion gene comprising:

a plurality of fragments of DNA molecules at least some of which are viral and have a length that is independently insufficient to impart a trait to plants transformed with that fragment of a DNA molecule, wherein at least some of the fragments of DNA molecules are at least 110 nucleotides in length but are less than a full-length cDNA, said plurality of fragments of DNA molecules collectively are at least 510 nucleotides in length and impart a trait to plants transformed with said DNA construct and to effect silencing of the DNA construct;

a single promoter sequence which effects transcription of the plurality of fragments of DNA molecules; and

a single termination sequence which ends transcription of the plurality of fragments of DNA molecules.

96. (New) A DNA construct according to claim 95, wherein the trait is viral disease resistance.

97. (New) A DNA expression vector comprising the DNA construct of claim 95.

98. (New) A host cell transformed with the DNA construct of claim 95.

99. (New) A transgenic plant transformed with the DNA construct of claim 95.

100. (New) A transgenic plant according to claim 99, wherein at least one of the traits is viral disease resistance, at least one of said DNA molecules being selected from the group consisting of a DNA molecule encoding a coat protein, a DNA molecule encoding a replicase, a DNA molecule not encoding a protein, a DNA molecule encoding a viral gene product, and combinations thereof.

101. (New) A method of imparting a trait to plants comprising:
transforming a plant with a DNA construct according to claim 95.

102. (New) A transgenic plant seed transformed with the DNA construct of claim 95.

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103. (New) A method of imparting a trait to plants comprising:
planting a transgenic plant seed according to claim 102 and
propagating a plant from the planted transgenic plant seed.
